

Amendments to the Claims:

Please cancel claims 1-54 without prejudice. This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims

1-54. (Canceled)

55. (New) A method for producing a blood type antigen, the method comprising contacting an alpha-1,2-fucosyltransferase polypeptide or bioactive fragment thereof with a substrate for sufficient time and under conditions such that a blood type antigen is produced.

56. (New) The method of claim 55, wherein the blood type antigen is an H type 1 antigen.

57. (New) The method of claim 55, wherein the blood type antigen is an H type 2 antigen.

58. (New) The method of claim 55, wherein the alpha 1,2- fucosyltransferase has a sequence as set forth in SEQ ID NO:2.

59. (New) A system for producing blood type antigen, the system comprising:

(a) a host cell transfected or transformed with a polynucleotide encoding an alpha 1,2-fucosyltransferase or bioactive fragment thereof;

(b) expressing a polypeptide from the polynucleotide;

(c) contacting the host cell with a substrate under conditions and for sufficient period of time such that the substrate is acted upon by the alpha 1,2-fucosyltransferase or bioactive fragment; and

(d) recovering a blood type antigen.

60. (New) The system of claim 59, wherein the blood type antigen is an H type 1 antigen.

61. (New) The system of claim 59, wherein the blood type antigen is an H type 2 antigen.

62. (New) The system of claim 59, wherein the alpha 1,2- fucosyltransferase has a sequence as set forth in SEQ ID NO:2.

63. (New) A method for producing an H type blood antigen, the method comprising contacting an alpha-1,2-fucosyltransferase polypeptide or bioactive fragment thereof with a substrate for sufficient time and under conditions such that an H type blood antigen is produced.

64. (New) The method of claim 63, wherein the H type blood antigen is an H type 1 antigen.

65. (New) The method of claim 63, wherein the H type blood antigen is an H type 2 antigen.

66. (New) The method of claim 63, wherein the alpha 1,2- fucosyltransferase has a sequence as set forth in SEQ ID NO:2.

67. (New) A system for producing H type blood antigen, the system comprising:

(a) a host cell transfected or transformed with a polynucleotide encoding an alpha 1,2-fucosyltransferase or bioactive fragment thereof;

- (b) expressing the polynucleotide;
 - (c) contacting the host cell with a substrate under conditions and for sufficient period of time such that the substrate is acted upon by the alpha 1,2-fucosyltransferase or bioactive fragment; and
 - (d) recovering an H type blood antigen.
68. (New) The system of claim 67, wherein the H type blood antigen is an H type 1 antigen.
69. (New) The system of claim 67, wherein the H type blood antigen is an H type 2 antigen.
70. (New) The system of claim 67, wherein the alpha 1,2- fucosyltransferase has a sequence as set forth in SEQ ID NO:2.